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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/037,674	03/09/1998	HIDEKI MIZUHARA	2933SE-11-CI	7419

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EXAMINER

NADAV, ORI

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 05/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/037,674

Applicant(s)

MIZUHARA ET AL.

Examiner

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 March 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 16-33 is/are pending in the application.
- 4a) Of the above claim(s) 16-24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 25-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 25-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakano (JP 6-291202) in view of Okumura et al.

Nakano teaches in figure 1b and related text a semiconductor device comprising a semiconductor substrate 11, an insulating film 12 on the substrate, wirings 13 located on the insulating film 12 and a passivation layer covering top surfaces of the insulating film and the wirings, including a first insulating film 15 that is a modified SOG containing boron impurities and inorganic component (abstract) and being in condition where organic component is decomposed, and a second insulating film 16 comprising oxide having a hygroscopicity lower than the first insulating film and being located on at least one of an upper side and lower side of the first insulating film, wherein no wiring is present on the passivation film (see figure 1b).

Although Nakano does not explicitly state that layers 15 and 16, respectively, are passivation layers, layers 15 and 16 meet the functional limitations of the claims since layers 15 and 16 protect the device.

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Nakano does not state that insulating film 12 is an interlayer insulating film. Okumura et al. teach in figure 13D an interlayer insulating film (ILD) 12 located between the semiconductor substrate 1 and wirings 16. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use an interlayer insulating film as the insulating film in Nakano's device in order to provide good isolation between the wiring layers and the active regions in the semiconductor substrate.

Regarding the claimed limitations of "a modified SOG film of an organic SOG film" and "being in condition where organic component is decomposed", these would not carry patentable weight in this claim drawn to a structure, because distinct structure is not necessarily produced by forming a modified SOG film from an organic SOG film. Note that a "product by process" claim is directed to the product per se, no matter how actually made, *In re Hirao*, 190 USPQ 15 at 17 (footnote 3). See also *In re Brown*, 173 USPQ 685; *In re Luck*, 177 USPQ 523; *In re Fessmann*, 180 USPQ 324; *In re Avery*, 186 USPQ 161; *In re Wertheim*, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and *In re Marosi et al.*, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se which must be determined in a "product by process" claim, and not the patentability of the process, and that an old or obvious product produced by a new method is not patentable as a product, whether claimed in "product by process" claims or not. Note that the applicant has the burden of proof in such cases, as the above case law makes clear.

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Regarding claims 26, 29 and 32, although Nakano does not explicitly state that silicon oxide has a hygroscopicity lower than boron doped SOG, this feature is inherent in Nakano's device, because it is well known in the art that silicon oxide has a hygroscopicity lower than boron doped SOG, of which judicial notice is taken.

### ***Response to Arguments***

3. Applicant argues that Nakano does not teach a passivation layer covering top surfaces of the insulating film and the wirings.

Nakano teaches a passivation layer 15 covering top surfaces of the insulating film 12 and the wirings 13.

4. Applicant requests that the examiner specifically point out this language from Nakano, such as by paragraph number or a copy of the reference which is marked to show the language within Nakano which states that a wiring is not required to be formed on top of the SOG film.

Applicant states that Nakano teaches in the specification, forming an Al wiring arranged on an interlayer insulating film on a second SOG film. The exact recitation is "even if it forms [still more nearly] another aluminum wiring on the SOG film". The phrase "even if" means that an artisan does not have to form a wiring on the passivation film.

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5. Applicant argues that Nakano teaches a wiring is present on the passivation film.

Nakano does not explicitly teach that a wiring is present on the passivation film. Nakano states that "even if it forms [still more nearly] another aluminum wiring on the SOG film". Thus, an artisan does not have to form a wiring on the passivation film.

Furthermore, the claimed limitation of no wiring is present on the passivation film means that applicant claims an intermediate product, because the claimed device would not operate if external wiring are not connected thereto to provide power and input/output connections. These external wiring must eventually be formed on the passivation film. Figure 2 of Nakano clearly depicts that no wiring is present on the passivation film, as claimed.

6. Applicant argues that the claimed device is not an intermediate product, but rather a complete semiconductor device, and external bonding wires are one method of connecting such devices to external devices through bonding pad regions which are present in the passivation film. The claimed semiconductor device may be connected to external circuitry through, for example, external bonding wires.

Even if the claimed semiconductor device is connected to external circuitry through external bonding wires, the external bonding wires must be formed on (above) the passivation film. If external wirings are not present in the complete semiconductor device, the product can be rendered to be inoperative.

***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

**Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.**

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Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to *Examiner Nadav* whose telephone number is **(571) 272-1660**. The Examiner is in the Office generally between the hours of 7 AM to 4 PM (Eastern Standard Time) Monday through Friday. Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **308-0956**

A handwritten signature in black ink, appearing to read 'Ori Nadav', with a stylized, flowing script.

O.N.  
May 6, 2004

ORI NADAV  
PATENT EXAMINER  
TECHNOLOGY CENTER 2800